

## Patent Claims

What is claimed is:

- 5 1. A coaxial line comprising a tubular inner conductor (3), an outer conductor (1), insulating material struts (5) between the inner conductor and the outer conductor, and connections for conducting a coolant through the line,  
10 characterized in that the coolant may be conducted through the inner conductor (3).
2. The coaxial line according to Claim 1,  
characterized in that the coolant may be supplied and  
15 removed via conduits (5.1) incorporated in at least some of the insulating material struts (5).
3. The coaxial line according to Claim 1 or 2,  
characterized in that the insulating material struts  
20 are arranged as tubes (5) which are led outward through the outer conductor (1).
4. The coaxial line according to Claim 1 or 2,  
characterized in that the insulating material struts  
25 are implemented as full disks (57) having radial conduits (57.1).
5. The coaxial line according to one of Claims 1 through 4,  
30 characterized in that the conduits (5.1; 57.1) of the insulating material struts (5; 57) open into a chamber (6) in an inner conductor connecting element (4) at the end of the tubular inner conductor (3).

6. The coaxial line according to one of Claims 1 through 5,  
characterized in that a tube (7) of smaller diameter, which is sealed on its face at both ends, is positioned coaxially in the tubular inner conductor (3), and the annular space (8) between said tube (7) and the tubular inner conductor (3) communicates with the conduits (5.1; 57.1) in the insulating material struts (5; 57).
7. The coaxial line according to one of Claims 1 through 5,  
characterized in that the tube (7) is sealed on its face by a flange (4.2) arranged on the inner conductor connecting element (4).
8. The coaxial line according to Claim 6,  
characterized in that the tube (7) is sealed on its face via flanges (71) which are mounted on the particular inner conductor connecting element in an axially and radially floating manner (41.1, 71.1).
9. The coaxial line according to one of Claims 6 through 8,  
characterized in that the tube (7) has centering elements (72) on its outer circumference which rest on the inner wall of the tubular inner conductor (3).
10. The coaxial line according to one of Claims 6 through 9,  
characterized in that the centering elements (72) are positioned along a spiral (in a screw shape) around the tube (7).

11. The coaxial line according to one of Claims 6 through 9,  
characterized in that the centering elements consist of axially extending webs (72.1).
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12. The coaxial line according to one of Claims 6 through 11,  
characterized in that the centering elements are of integral configuration with the tube (7).
- 10
13. The coaxial line according to one of Claims 1 through 12,  
characterized in that the tubular inner conductor (30) has axial conduits (31) in its jacket which communicate  
15 with the conduits in the insulating material struts.
14. The coaxial line according to one of Claims 1 through 13,  
characterized in that it consists of sections which are  
20 coolable separately from one another and are connected electrically and mechanically to one another (A, B).
15. The coaxial line according to Claim 14,  
characterized in that the tubular inner conductors (3,  
25 30) of adjoining sections (A, B) of the line are connectable to one another via complementary plug-in connections.
16. The coaxial line according to Claim 15,  
30 characterized in that the complementary plug-in connection consists of a flange plate (10) which terminates the chamber (6) of the inner conductor connecting element (4) and comprises an axially extending first annular shoulder (10.1) which overlaps

a second annular shoulder (11.1) on a flange plate (11) of the adjoining line section and is in turn overlapped to form a contact by a collar (11.2) of axially extending contact springs which concentrically encloses the second annular shoulder (11.1).

17. The coaxial line according to Claim 16, characterized in that the free ends of the contact springs of the contact spring collar (11.2) lie in a radial plane which is set back axially in relation to the radial plane containing the face of the second annular shoulder (11.1).
18. The coaxial line according to Claims 17, characterized in that the flange plates (10, 11) are screwed to the inner conductor connecting element (4).
19. The coaxial line according to one of Claims 1 through 18, characterized in that the insulating material struts (5) are led in a floating manner in the axial direction through the outer conductor (1).
20. The coaxial line according to one of Claims 1 through 19, characterized in that the end of each insulating material strut (5) led through the outer conductor (1) is enclosed by a guide flange (51) which is held in a recess of the outer conductor in a floating manner in the axial direction, is sealed radially elastically in relation thereto, and is in contact radially elastically therewith.

21. The coaxial line according to one of Claims 1 through  
20,  
characterized in that each of the tubular insulating  
material struts (5) is held tiltable in an axial plane  
5 with its inner end in the inner conductor connecting  
element (4) and with its outer end in the outer  
conductor wall (1).